

ABSTRACT OF THE DISCLOSURE

5 An olefin polymerization catalyst prepared by a process
comprises contacting (A) a transition metal compound in
which the number of a transition metal is the same as
that of group having a cyclopentadiene type anion skeleton,
in its molecule, (C) a modified aluminumoxy compound
obtained by reacting an aluminumoxy compound with a boron
compound represented by the general formula $BQ^1Q^2Q^3$,
10 wherein Q^1 , Q^2 and Q^3 are respectively a halogen atom, a
hydrocarbon group, a halogenated hydrocarbon group, a
substituted silyl group, an alkoxy group or a di-substituted
amino group and optionally (B) a specified organoaluminum
compound, and a process for producing an olefin polymer using
15 the catalyst.